

Appl. No. 10/533,604

Response to Non-Final Office Action dated February 26, 2009

## REMARKS

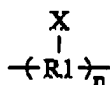
This Amendment is submitted in response to the non-final Office Action mailed on February 23, 2009. No fee is due in connection with this Amendment. The Director is authorized to charge any additional fees which may be required, or to credit any overpayment to Deposit Account No. 02-1818. If such a withdrawal is made, please indicate the Attorney Docket No. 112857-447 on the account statement.

Claims 18-19 and 21-34 are pending in this application. Claims 1-17 and 20 were previously canceled and Claims 22-34 were previously withdrawn from consideration. In the Office Action, Claims 18-19 and 21 are rejected under 35 U.S.C. §103. In response, Claim 35 has been newly added. The claims do not add new matter. For at least the reasons set forth below, Applicants respectfully submit that the rejection should be withdrawn.

In the Office Action, Claims 18-19 and 21 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Publication No. 2002/0160272 A1 to Tanaka et al. ("*Tanaka*") or U.S. Patent Publication No. 2004/0115501 A1 to Hinokuma et al. ("*Hinokuma*") in view of U.S. Patent No. 5,705,534 to D'Agostino et al. ("*D'Agostino*"). For the reasons discussed below, Applicants respectfully submit that *Hinokuma* is not proper prior art.

Applicants respectfully submit that *Hinokuma* is not proper prior art under 35 U.S.C. §102(e). The international application filing date in this case is November 17, 2003 which predates the earliest effective prior art date of *Hinokuma* (e.g., January 20, 2004). In this regard, *Hinokuma* cannot be relied on as 102(e) art because it was not published in the English language at the PCT phase. See, MPEP §706.02(f). As such, *Hinokuma* is not prior art under 35 U.S.C. §102(e). Therefore, Applicants respectfully submit that *Hinokuma* cannot be applied as prior art in this case.

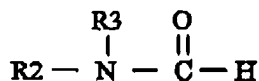
Furthermore, for at least the reasons set forth below, Applicants respectfully submit that the remaining cited references, *Tanaka* and *D'Agostino*, fail to disclose or suggest each and every element of independent Claim 18 and Claims 19 and 20-21 that depend therefrom. Independent Claim 18 recites, in part, a proton conductor, including an impregnated complex composed of: a first compound having a first structural part having a first formula:



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where R1 represents a component including carbon, X represents a protoic dissociation group, and  $n \leq 1$ ; and a second compound having a second structural part having a second formula:



where R2 and R3 represent a component including carbon or hydrogen, respectively, wherein a number of moles of the first compound is a, a number of moles of the second compound is b, and a ratio of the number of moles b to the number of moles of the protoic dissociation group ( $a \times n$ ) is greater than or equal to 10 and less than or equal to 30, wherein the first compound is a film into which the second compound is impregnated. In contrast, *Tanaka* and *D'Agostino* fail to disclose every element of the present claims.

For example, *Tanaka* and *D'Agostino* fail to disclose or suggest an impregnated complex composed of a first compound having a first structural part of the first claimed formula and a second compound having a second structural part of the second claimed formula, wherein the first compound is a film into which the second compound is impregnated as recited, in part, by independent Claim 18. The Patent Office admits that *Tanaka* fails to expressly disclose that the amide compound impregnates the polymer film and instead merely discloses contacting the polymer film with an amide solution. See, Office Action, page 4, lines 14-16; page 5, lines 1-2. Nevertheless, the Patent Office relies on *D'Agostino* to show that a Nafion membrane can be impregnated with dimethyl formamide ("DMF") merely by immersing the Nafion membrane in the DMF solution. See, Office Action, page 5, lines 2-9. However, the portions of *D'Agostino* relied on by the Patent Office merely disclose that immersing a Nafion membrane in a solution containing a metal dissolved in DMF impregnates the Nafion membrane with the metal. See, *D'Agostino*, column 3, lines 60-67; column 6, lines 16-29. *D'Agostino* is entirely directed to impregnating a Nafion membrane with a complex of silver, tungsten, molybdenum or a mixture thereof. See, *D'Agostino*, Abstract, lines 1-8; column 1, lines 10-18; column 2, lines 51-59; column 3, lines 50-67; column 4, lines 60-65. Although *D'Agostino* discloses immersing the Nafion in a dilute solution of tungsten chelate dissolved in DMF to impregnate the membrane, nowhere does *D'Agostino* disclose that the membrane is impregnated with the DMF. Applicants respectfully submit that one skilled in the art would understand that the conditions required for impregnation vary for different compounds and depend on the immersion time, pressure,

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temperature, etc. As such, the conditions disclosed in *D'Agostino* for impregnation with a metal are not necessarily equivalent to those required to impregnate a compound with DMF. Therefore, the cited references fail to disclose a first compound into which the second compound is impregnated in accordance with the present claims.

Furthermore, Applicants respectfully submit that one of ordinary skill in the art would recognize that the amine of *Tanaka* is not impregnated in the Nafion membrane but instead reacts with the side chains of the Nafion to cause crosslinking of the Nafion polymers. For example, *Tanaka* is entirely directed to contacting its electrolyte with an amine compound to cause crosslinking of the polymer electrolyte. See, *Tanaka*, page 4, paragraph 63. *Tanaka* expressly states that "either covalent or ionic crosslinking caused by the amine compound is formed in a portion of the electrolyte groups." See, *Tanaka*, page 6, paragraph 86, lines 3-5. The crosslinking occurs because the nitrogen in the amine compound reacts with an acid group in the electrolyte. See, *Tanaka*, page 10, paragraphs 146-147; page 11, paragraph 154. When the amide compound is reacted with the acid groups in the electrolyte, the amide compound no longer exists because the nitrogen is taken away from the DMF and reacted with the acid groups in the electrolyte to form a different compound. See, *Tanaka*, page 16, Chemical formula 4. As a result, Applicants respectfully submit that one skilled in the art would understand that the DMF compound of *Tanaka* is not impregnated in the Nafion membrane but rather reacts with the acidic side chains to form a crosslinked compound. Thus, the cited references fail to disclose an impregnated complex wherein the first compound is a film into which the second compound is impregnated as required, in part, by the present claims.

Accordingly, Applicants respectfully request that the rejection of Claims 18-19 and 21 under 35 U.S.C. §103(a) to *Tanaka* or *Hinokuma* and *D'Agostino* be withdrawn.

Applicants further note that Claim 35 has been newly added. The new Claim is fully supported in the Specification at, for example, page 5, paragraph 68, lines 1-4. No new matter has been added thereby. Applicants respectfully submit that the subject matter as defined in the newly added claims is patentable over the cited art for at least substantially the same reasons as discussed above.

For the foregoing reasons, Applicants respectfully submit that the present application is in condition for allowance and earnestly solicit reconsideration of same.

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Respectfully submitted,

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